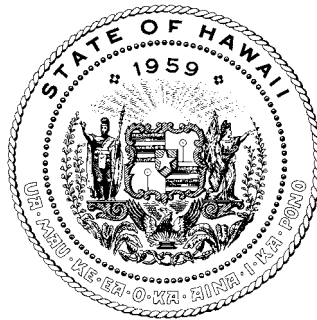


**ANNUAL REPORT TO THE TWENTY-SECOND LEGISLATURE  
STATE OF HAWAII  
REGULAR SESSION OF 2003**

**RELATING TO THE NATURAL AREA RESERVES SYSTEM  
AND  
NATURAL AREA PARTNERSHIP PROGRAM**



**Prepared by**

**THE STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF FORESTRY AND WILDLIFE**

**In reponse to Section 195-6.6, Hawaii Revised Statutes**

**Honolulu, Hawaii  
November, 2002**

**ANNUAL REPORT TO THE TWENTY-SECOND LEGISLATURE  
REGULAR SESSION OF 2003  
RELATING TO THE NATURAL AREA RESERVES SYSTEM  
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**PURPOSE**

Section 195-6.6, Hawaii Revised Statutes (HRS), requires an annual comprehensive status report on the Natural Area Reserves System and the Natural Area Partnership Program (NAPP). This report will include, but not be limited to:

1. Description of activities and accomplishments;
2. Compliance with Chapter 42D, HRS requirements;
3. Analysis of the problems and issues encountered in meeting or failing to meet the objectives set forth in the management plans;
4. Status of public hunting opportunities;
5. Financial condition of the Natural Area Reserve Fund, including receipts and expenditures for the Fund for the previous fiscal year (FY02);
6. Plans and management objectives for the next fiscal year (FY03).

**NATURAL AREA RESERVES SYSTEM (NARS)**

**1. DESCRIPTION OF ACTIVITIES AND ACCOMPLISHMENTS.**

The statewide NARS currently consists of 19 reserves with a total of 109,165 acres on five islands. The System was set up with the mandate of protecting the best remaining examples of native ecosystems and geological sites on state-managed lands, which would act as a yardstick by which to measure changes occurring across the rest of the State. Annual program activities are based primarily on the long-term integrated management plans developed for each reserve. While NARS is based on the concept of protecting native ecosystems, as opposed to single species, many rare and endangered plants and animals benefit from the protection efforts through the program. Major management activities implemented according to the management plans include ungulate control, non-native plant control, monitoring, rare species protection strategies and public education. While the majority of the reserves have management plans, the plans are being reviewed and updated as new management actions are identified. To this end, the Department of Land and Natural Resources (DLNR's) Division of Forestry and Wildlife (DOFAW) participates in a number of working groups to facilitate increased input by all concerned parties before existing plans are revised and new plans are written. Large-scale management actions, such as fences, may go through the Environmental Assessment process. Management policies approved by the Board of Land and Natural Resources (BLNR) continue to be the general guide for rule-making and development of management plans for NARS.

### **Non-native Animal Control.**

Ground and aerial surveys of feral ungulates (pigs, goats and deer) were conducted in various reserves. As outlined in the management plans, the type of control measures implemented depended on the reserve location, terrain features and relative abundance of non-native animals. Public hunting, staff hunting, snaring (only in a few remote fenced areas) and strategic fencing were used to control non-native animals in the reserves. Organized control methods (primarily public hunting) eliminated 150 pigs, 36 black tailed deer and 901 goats (431 by hunters and 470 by aerial control). In addition, small mammal control efforts captured 32 mongoose, 33 feral cats and 70 tree frogs in the Manuka Reserve.

As part of the continuing feral ungulate control program, fenced rare plant exclosures were maintained on all islands in and adjacent to the reserves. Over 50 miles of existing ungulate control fence were maintained.

The Molokai Hunting Working Group continues to meet and participate as a community in long-term management of the Natural Area Reserves, Nature Conservancy Preserves and portions of Kalaupapa National Historical Park. Public and organized hunting have kept feral ungulate activity levels from escalating. However, there is room for increased control efforts, particularly in the remote pali areas, to reduce damage. The Working Group continues to provide an opportunity for land managers and local community members to interact and gain an appreciation for each other's perspectives while trying to protect and enhance native ecosystems.

The Maui Axis Deer Group, composed of public and private sector members, met several times over the past year to discuss strategies for dealing with Maui's expanding deer population. The deer negatively impact human health, public safety and the maintenance of healthy native ecosystems.

Efforts were made this year to increase the safety and efficiency of aerial control of feral ungulates by: developing a Division-wide aerial ungulate control policy and standard operating procedures; training several staff to be certified aerial gunners so there are experienced certified personnel on each island; and working on memorandum of agreements to enable DOFAW to conduct aerial control on private lands within the Molokai and Maui watershed partnership areas.

### **Non-native Plant Control.**

Aggressive non-native plants were cleared from over 2,000 acres in the Kuia Reserve on Kauai; Kaena Point, Kaala and Pahole Reserves on Oahu; Hanawi and Ahihi-Kinaiu Reserves on Maui; Puu Alii Reserve on Molokai; Laupahoehoe, and Puu O Umi, Manuka, Puu Makaala and Kipahoehoe Reserves on Hawaii. The cleared areas are being

monitored to prevent the re-establishment of undesirable non-native plants. Weed control methods include removal by hand and the use of approved herbicides. Fifteen hundred acres were accessed and mapped for weeds in the Hono O Na Pali Reserve on Kauai. Volunteers provided over 3,000 hours of manual labor needed to remove the non-native plants. Bio-control projects for *Clidemia* in the Hono O Na Pali Reserve and blackberry in the Kaala Reserve continue under permit.

### **Rare Species Protection and Restoration.**

Utilizing staff time and funds as cost-share for Federal Section 6 grants, several management activities were accomplished in the reserves. Fenced rare plant exclosures were maintained in the reserves on all islands. Numerous species are monitored year-round for flowering and seed production so that plant material may be collected at the appropriate time for propagation.

Outplanting efforts were increased in the Pahole Reserve on Oahu, and additional improvements were made to the Pahole Rare Plant Facility at the former Nike site to enhance the outplanting program. On Kauai, the Kokee Rare Plant Facility continues to be the focus on propagation for outplanting in the Kalalau Rim site with 27 species planted. On Hawaii, the Manuka and Kipahoe Reserves benefited from increased outplanting efforts for 95 species. The species are propagated primarily at the Volcano Rare Plant Facility.

Staff also worked in other areas of natural-area quality to broaden efforts to protect and enhance native plant populations. Noteworthy was staff taking the lead in working with the Department of Transportation to implement interim mitigative measures for the endangered *Abutilon menziesii* Habitat Conservation Plan for the North-South Road, East Kapolei, Oahu.

The Maui Forest Bird Recovery Project in Hanawi, Maui is dedicated to maintaining suitable habitat for East Maui's native forest birds. In particular, the Project maintains the home range of the poouli, the most endangered wild bird in the world with only three individuals remaining. Specific accomplishment this year included the capture and translocation of a female poouli with the hope of forming a pair bond with the lone remaining male. A short documentary was made of the efforts and is aired regularly on Olelo public access television. For additional information on this project see [www.mauiforestbird.org](http://www.mauiforestbird.org).

Two predator-free snail sanctuaries to protect the endangered tree snail *Achatinella mustelina* were maintained in the Pahole Reserve, and extensive surveys were conducted for remaining snails in both the Waianae and the Koolau mountains ranges.

### **Research.**

Staff recommended approval by the BLNR of 48 Special Use Permits for research and education in NARS. One permit in particular was noteworthy with regard to NARS management. Doug Arnott of Arnott's Lodge in Volcano, Hawaii was issued for a

limited commercial tour operation in the Mauna Kea Ice Age Reserve – the first such permit issued by the BLNR. This permit triggered the establishment of the NARS Commercial Use Task Force and a proposed change in the NARS rules. The proposed rule change will give the BLNR the authority to either prohibit or control commercial uses in NARS, depending on the potential impact to the resource.

Staff continues to assist visiting researchers in the field and with logistics, as time allows.

Staff review and comment on all research proposals and meet with researchers before they conduct any field work for safety reasons, as well as to insure that the proposed research will enhance the knowledge base of these areas and contribute to the long-term health of the reserves. To simplify the permitting process, staff developed standardized guidelines and application forms, which are available on the NARS website ([www.dofaw.net/nars](http://www.dofaw.net/nars)). This should help avoid unnecessary duplication, direct applicants to the appropriate staff, and facilitate timely review and processing.

Staff is conducting research through management to increase the efficiency of predator control, application of bio-control agents, and herbicide trials for weed control.

Staff assisted the Society of Conservation Biology with its international conference in Hilo by helping to organize the event and leading field trips to the reserves. Exposure of the reserves to world-renowned researchers will stimulate research, as well as heighten awareness of the problems and aid in developing management solutions.

### **Monitoring.**

Monitoring is necessary to measure the condition and status of natural resources as they change over time due to environmental factors, human activities and specific management programs. Different monitoring techniques are used, depending on the type of resource monitored and the level of information needed. Monitoring plots continue to be maintained in a majority of the reserves, and detailed vegetation plots are monitored in the Puu Makaala Reserve on Hawaii. Long-term monitoring and maintenance of over 35 miles of weed and ungulate transects was continued in four reserves on Hawaii, and 20 miles of ground-based ungulate and weed transect activity were monitored in the Oahu reserves. Sixty-five miles of ungulate aerial transects were read quarterly in the Maui reserves. Staff are now performing resource survey and monitoring as part of their daily work activities.

The data are compiled and maintained at both DOFAW branch offices and the University of Hawaii Natural Heritage Program database. DOFAW's in-house monitoring, Geographic Information System (GIS) and mapping capabilities were enhanced this past year with staff training and the purchase of appropriate software and equipment.

### **Public Outreach, Youth Activities and Community Involvement.**

Forty-seven public outreach and service trips were made to the reserves, offering teachers and volunteers an opportunity to experience these unique places directly. NARS staff

attended several public events, such as Earth Day on Molokai, to increase visibility of NARS and provide information about the program to the public. Public lectures were given at University of Hawaii and within the public and private school systems. “The Forest Jewels of Hawaii” traveling bird exhibit was sent to the Island of Hawaii where it was hosted in three public venues in Keauhou-Kona, Waimea and Hilo. Slide shows, information fairs and public lectures were organized in association with the exhibit to broaden the public’s awareness of native species and ecosystems.

The Youth Conservation Corps (YCC) expanded this year to include three teams and a total of 45 youth participants on Kauai, Oahu and Hawaii. The program lasted seven weeks and included a team trip to Kahoolawe. For more information on the YCC, see [www.hawaii.ycc.com](http://www.hawaii.ycc.com).

A new NARS website was created to provide a virtual tour of each reserve and additional information to the public on the NARS mission, policies and procedures, contact information and permitting guidelines (see <http://www.dofaw.net/nars/>). Also, a new website was designed for the Watershed Partnership Program to provide the public and potential partners with information about the Program and how to become involved (see [www.state.hi.us/dlnr/dofaw/wpp/index.html](http://www.state.hi.us/dlnr/dofaw/wpp/index.html)). The innovative website, [www.conservationhawaii.org](http://www.conservationhawaii.org), continues to present conservation issues to the general public.

A public outreach campaign was initiated to introduce the public to the concept of watershed and its relationship to fresh water. Watershed posters for classrooms and buses were produced, as well as four public service announcements. The posters and announcements were well received by the public.

### **Infrastructure.**

Staff maintained 582 signs through out NARS. Information and boundary signs were installed or replaced in several reserves, and a new sign in English and Hawaiian was installed at the Kaena Point Reserve on Oahu. Approximately 125 miles of existing trails were maintained in various reserves, primarily for management purposes. Alien plant control was the major activity along the trails to limit the spread of weeds to new areas. Three miles of boardwalk in the Alakai Wilderness Preserve on Kauai and the Kaala Reserve boardwalk on Oahu were maintained.

Over 50 miles of existing ungulate control fence were maintained with regularly scheduled inspections, and immediate repairs were made to prevent ungulate ingress and subsequent damage to the resource. Existing helipads were maintained to facilitate management and monitoring and to provide access for emergencies. Fifteen management shelters were maintained for long-term management actions, and major improvements were made to the Hanawi Reserve shelters. Over 25 miles of roads, mostly on Hawaii and Oahu, were maintained to provide hunter and management access. Road barriers continue to be maintained in the Manuka Reserve on Hawaii to prevent dumping and

illegal logging activities. Vehicle barriers continue to be maintained on both sides of Kaena Point to protect the fragile dune ecosystem and cultural sites by prohibiting off-road vehicle use. Similarly, vehicle barriers continue to be maintained at Ahihi-Kinau on Maui to protect geological and cultural features from off-road damage. On Hawaii, 1.1 miles of fenceline were constructed in the Manuka and Puu Makaala Reserves, and 20 miles of fenceline were maintained in the Kipahoe, Manuka, Puu Makaala and Puu O Umi Reserves.

### **Recreation.**

Although the primary mission of NARS is resource protection, the reserves provide recreational opportunities for residents and tourists in pursuits such as hiking, photography, kayaking, diving, nature viewing and hunting. Some of the most popular areas for these activities are within the reserves. Providing and maintaining roads, trails, boardwalks, shelters, interpretative signage and brochures enhance public awareness, access and enjoyment of the NARS.

## **2. COMPLIANCE WITH CHAPTER 42D, HRS, REQUIREMENTS.**

All management activities were in accordance with the provisions in Chapter 42D, HRS.

## **3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED IN MEETING OR FAILING TO MEET THE OBJECTIVES AS SET FORTH IN THE MANAGEMENT PLANS.**

Lack of adequate, permanent dedicated funding is now the primary limiting factor in increasing protection and management of NARS, adding new management initiatives, revising and developing management plans, and increasing community relations. However, with short-term federal funding, hard working dedicated staff, and partnering with other landowners and volunteers, the NARS Program is making strides in meeting its objectives.

## **4. STATUS OF PUBLIC HUNTING OPPORTUNITIES.**

Public hunting continues to be the first control option of choice within NARS, although hunting is not managed on a sustained-yield basis. Increased public hunting opportunities occurred on Oahu and Hawaii as a result of construction and maintenance of improved access roads and trails. These efforts provided access to areas formerly inaccessible to most people. The two reserves on Kauai, Kuia and Hono O Na Pali, are accessible for public hunting.

5. **FINANCIAL REPORT.**

NARS, on lands under State jurisdiction, is supported through the General Fund, Appropriation 047 (see Table A).

6. **PLANS AND MANAGEMENT OBJECTIVES FOR THE NEXT FISCAL YEAR.**

Where appropriate, reserve management activities will be guided by management plans. Activities in several reserves, especially those on the Big Island, will incorporate recommendations from current working groups. In some instances, revisions of existing plans may be warranted when community input is considered. Plan implementation will focus on preventing, eliminating or controlling the spread of non-native plants and animals that have a detrimental effect on native ecosystems. Other management considerations will include local community concerns, monitoring, research, public education, volunteer support and improving access. Youth programs providing hands-on experiences will continue to be a high priority.

In addition to regular management activities, several specific projects will be initiated this year, in part, due to DOFAW's success in obtaining several federal grants and the Legislature providing State cost-share from the Natural Area Reserve Fund:

Hawaii: Fence construction to protect a 10-acre unit in the Puu O Umi Reserve; fence repair in cooperation with the Parker Ranch along the Puu O Umi Reserve boundary to secure the area from cattle; fence construction in the Puu Makaala Reserve (1.2 miles) to complete and protect the Wright Road unit and contribute to the greater goals of the Olaa-Kilauea Partnership; in cooperation with MacFarms of Hawaii, strategically fence the north boundary of the Manuka Reserve to protect the Reserve and a greater portion of the South Kona watershed from ungulates.

Maui: Plan, organize and implement cooperative management fence project for the Puu Alii Reserve on Molokai; prepare environmental assessment for fence project in the Kanaio Reserve on Maui, including field surveys for fence location and surveys of botanical and archaeological resources.

Oahu: Plan, organize and implement Kapuna Gulch fencing project in the Pahole Reserve; conduct resource surveys and prepare board submittal for including upper portion of Poamoho section of Ewa Forest Reserve in NARS; work with United States Army in Makua mitigation process.

Kauai: Plan, organize and implement fencing project in Kuia Reserve; continue implementation of successful rare plant program.

The YCC Program is planning to increase the number of students enrolled by adding additional teams on West Hawaii and Molokai to complement the existing teams on Kauai, Oahu and East Hawaii. Also, in partnership with Americorp and using NAPP



cost-share (See Table F), the Program hopes to establish 20 student internships assigned to various programs within DOFAW.

## **NATURAL AREA PARTNERSHIP PROGRAM (NAPP)**

### **PURPOSE**

This innovative program, established by the Legislature in 1991 through Act 326, provides State-matching funds on a 2:1 basis with private funds for the management of natural resources on private lands permanently dedicated to conservation. This program complements the existing NARS by providing long-term protection and management of unique natural resources on private lands.

NAPP provides support for a full range of management activities to protect, restore and enhance significant native resources and geological features. DOFAW staff administers the Program, although the private applicant carries out all on-the-ground activities. Six-year, long-range management plans provide funding and direction for each NAPP preserve. Since 1993, a portion of the Conveyance Tax, which is levied each time real estate property is bought or sold,

has funded the Program. For more information on NAPP, see [www.state.hi.us/dlnr/dofaw/napp/index.html](http://www.state.hi.us/dlnr/dofaw/napp/index.html).

Beginning in FY01, via Act 269 (2000), NAPP has expanded its scope to include providing year-to-year funding for watershed projects using the balance of the yearly allotment. Watershed management is an efficient way to manage the natural landscape against threats to the health of the forest and more effectively protect and utilize these areas for the good of Hawaii's citizens. In FY02, this program provided funding and technical support to protect thousands of acres in several existing watershed partnerships: East and West Maui Watershed Partnerships (EMWP and WMWP), Koolau Mountain Watershed Partnership on Oahu (KMWP), Lanaihale Watershed Partnership (LWP), East Molokai Watershed Partnership (EMoWP) and projects on the Kohala Mountain. In addition, planning funds have been allocated for formative watershed partnerships in Kauai and Hawaii. Projects focus on alien species control and fencing. For more information on NAPP watershed projects, see [www.state.hi.us/dlnr/dofaw/wpp/index.html](http://www.state.hi.us/dlnr/dofaw/wpp/index.html).

An added benefit of NAPP funding is to provide a State cost-share for the partnerships to aggressively pursue Federal watershed and conservation grants. See Table B and C for FY02 expenditures and the financial condition of the Natural Area Reserve Fund.

### **1. DESCRIPTION OF ACTIVITIES AND ACCOMPLISHMENTS.**

#### **NAPP Preserves**

##### **KANEPUU PRESERVE**

**Landowner:**

**Dole Food Company, Inc.**

**Managing Partner:**

**The Nature Conservancy**

**Entered NAPP:**

**FY92**

Kanepuu Preserve comprises 590 acres in seven distinct units and represents the last major remnant of a dryland forest community that once covered large portions of Maui, Lanai, Molokai and Kahoolawe. Ten rare plants, six of them federally listed, have been reported from the Preserve. Protection from axis deer, control of non-native plant species, and use of the Preserve as a focal point for dryland forest restoration, research and study have been and will continue to be the primary management activities. Volunteer public hunters controlled axis deer in all fenced units. Recovery of native vegetation, fence repair and replacement of weak fencing continued. Public outreach efforts included trained volunteer docents leading Preserve hikes for the general public. The self-guided nature trail continued to provide additional educational opportunities.

#### **KAPUNAKEA PRESERVE**

**Landowner:**  
**Managing Partner**  
**Entered NAPP:**

**Pioneer Mill Company, Ltd.**  
**The Nature Conservancy**  
**FY92**

This 1,264-acre Preserve is a component of regional protection efforts for the important watershed and native ecosystems found in the West Maui Mountains. Containing ten native dominated communities, 24 rare species or plants (five federally listed), as well as four rare snail species, the Preserve's upper elevations are recognized as among the highest quality native areas in the state. Prevention of new introductions and control of both animal and plant non-native species were the primary objectives of Preserve management efforts. Highlights this past year include: no new ungulate incursions to the pristine bog areas and dramatic reduction of pig sign preserve-wide; control efforts for non-native species, such as guava, blackberry and *Tibouchina herbacea*; and an active public outreach program through public lectures, monthly Preserve hikes and service trips.

#### **PELEKUNU PRESERVE**

**Landowner:**  
**Managing Partner:**  
**Entered NAPP:**

**The Nature Conservancy**  
**The Nature Conservancy**  
**FY92**

Pelekunu Preserve, located on the north shore of Molokai, is a 5,759-acre preserve established to protect the free-flowing Pelekunu Valley Stream System, one of the best in the state. It is also part of a larger regional management effort that provides protection to over 22,000 contiguous acres on Molokai. Pelekunu contains nearly all the native Hawaiian freshwater fish, crustacean and mollusk species. In addition, 27 rare plant, 5 endemic forest bird, and 2 endemic land snail species have been reported from the area. Protection of the watershed by reducing ungulate damage and reducing the spread of non-native plants were the primary management activities. Feral ungulate control and monitoring in the back portion of the Preserve remained the primary focus. Public hunting continued to be utilized through the Molokai Hunting Working Group. During

FY01, 17 goats, 8 axis deer and 32 pigs were removed through ground hunting. Public outreach programs continued with public lectures, Preserve overlook hikes, and the support of interns, Alu Like and summer youth programs.

#### **PUU KUKUI WATERSHED MANAGEMENT AREA (WMA)**

|                          |                                      |
|--------------------------|--------------------------------------|
| <b>Landowner:</b>        | <b>Maui Land &amp; Pineapple Co.</b> |
| <b>Managing Partner:</b> | <b>Maui Pineapple Co.</b>            |
| <b>Entered NAPP:</b>     | <b>FY94</b>                          |

With over 8,600 acres, the Puu Kukui WMA is a critical component of regional protection efforts on West Maui for over 13,000 contiguous acres. 14 native natural communities, 2 of them rare, are found in the Preserve along with over 40 rare plant species and 6 endemic species of land snails. Primary management efforts were focused on the removal of feral ungulates and control of non-native plant species. Feral ungulate control efforts were maintained, and low to no animal activity levels were observed in the high-priority upper elevation areas of the Preserve, although 28 pigs were removed from lower areas. Vegetation recovery was documented in previously disturbed areas. Small mammal trapping was conducted for rats in several locations. Control measures continued for populations of high-priority non-native plant species, including *Clidemia*, *Psidium* and *Tibouchina*. Limited control and monitoring of the cannibal snail continued at various elevations in the Preserve. A number of survey trips documented the presence of new populations and new species records for the Preserve. Several research projects were carried out in the Preserve with logistical support provided by Preserve staff. Protection of the fragile bog ecosystem was enhanced through upgrading and adding to the boardwalk in the high-elevation region of the Preserve to replace existing trails.

#### **KAMAKOU PRESERVE**

|                          |                               |
|--------------------------|-------------------------------|
| <b>Landowner:</b>        | <b>Molokai Ranch, Ltd.</b>    |
| <b>Managing Partner:</b> | <b>The Nature Conservancy</b> |
| <b>Entered NAPP:</b>     | <b>FY95</b>                   |

This 2,774-acre Preserve helps increase regional protection efforts for the important watershed and native communities found in East Molokai. 37 of the plant species are rare with 18 of these species listed as federally endangered. In addition, the Preserve protects habitat for 5 native forest bird and 5 rare native land snail species. The primary management focus was to prevent degradation of the native forest by reducing feral ungulate damage, limiting the spread of non-native habitat-modifying plants, and preventing wildfire. The major accomplishment was completion of the Kamalo/Kapualei fence, which provides additional watershed protection for East Molokai. In the Preserve, feral ungulate control activities continued to utilize volunteer hunters from the Molokai community. Staff and volunteer groups removed *Clidemia*, strawberry guava, New Zealand flax, pines, ginger and blackberry in the Preserve. Monitoring transects were also maintained. Preserve staff provided logistical support for several research projects conducted in the Preserve. Public outreach programs continued to be important both on- and off-site.

## **MOOMOMI PRESERVE**

**Landowner:**

**The Nature Conservancy**

**Managing Partner:**

**The Nature Conservancy**

**Entered NAP Program:**

**FY95**

This 921-acre Preserve on Molokai contains one of the largest and best remaining dune ecosystems with associated rare coastal plants in Hawaii. Seven plant species and one native community are considered rare. Green sea turtles, Laysan albatrosses and Hawaiian monk seals are known to utilize the area. In addition, Moomomi contains significant archaeological, paleontological and cultural resources. Ungulate control activities in FY02 centered on maintaining fences to exclude domestic cattle from entering the Preserve. Non-native plant control for FY01 (by both staff and volunteers) focused on removing kiawe, Australian saltbrush and *Reichardia tingitana*. Protection of important cultural sites continued through cooperative efforts with DLNR's Division of Historic Preservation and local community groups. Community outreach programs included preserve hikes and off-site activities. Staff provided logistical support for researchers investigating land snail deposits in the Preserve.

## **WAIKAMOI PRESERVE**

**Landowner:**

**Haleakala Ranch Company**

**Managing Partner:**

**The Nature Conservancy**

**Entered NAP Program:**

**FY95**

This 5,230-acre Preserve helps increase regional protection efforts for the important watershed and native species habitat found in the East Maui Watershed Area. This Preserve provides critical habitat for 13 native bird species, 8 of which are federally listed as endangered. 14 native natural communities, 2 of them rare, are found in the Preserve along with 25 rare plant species. The primary strategy for the protection of Waikamoi was to reduce damage to vegetation and soils by removing all ungulates. In FY02 ungulate control activities continued, with pig activity remaining moderately low. Axis deer monitoring continued. The newly formed Axis Deer Working Group continued to meet and provide a forum for all concerned parties to address this problem. New fences constructed through the East Maui Watershed Partnership will help to prevent ingress of ungulates into Waikamoi. Habitat-modifying weed species were controlled, including kahili ginger, gorse and tropical ash. In addition, considerable effort was devoted to *Miconia* monitoring and control to prevent its establishment in the Preserve. Volunteer service trips provided hands-on help with weed control and other efforts, while Nature Conservancy docents and National Park Service interpreters conducted educational hikes for the public. Service trips helped with non-native plant species control and provided further educational opportunities. Other public outreach efforts focused on community and school groups in the East Maui Watershed Partnership region.

## **NAPP Watershed Projects**

### **Koolau Mountains Watershed Partnership Project**

The objectives of this project were to (1) develop a shared watershed management plan for the Koolau Range and (2) hire and support a coordinator to implement the management plan. To accomplish the first objective, the partners contracted a management plan writer who, with input and review from the partners, finalized a management plan. Part of the process included a workshop with land and resource managers familiar with the land, and prioritizing management areas and projects to expedite implementation of the plan. A sub-committee hired a coordinator from a pool of 20 applicants. The Partnership went beyond its original objectives by, among others things, establishing an office and baseyard (Waimano DLNR Baseyard), which is perfectly situated in the Koolau Mountains.

### **West Maui Mountains Watershed Partnership Project**

The project objective to support the salary for the Partnership coordinator was met. Under the direction of the Partners, the coordinator was able to: complete an Environmental Assessment for projects identified in the management plan that required BLNR approval; consult cultural and archeological experts on the significance of the watershed in compliance with the Office of Environmental Quality Control requirements; establish a committee to prioritize fence construction and animal control efforts; and hire a four-member fencing crew and three-member team to control non-native species and implement other management. Extensive training was conducted for helicopter operations, first aid, rappelling, herbicide use and gun safety. As of June 31, 2002, 1.5 miles of fence had been built. Weed and ungulate control continued.

### **East Maui Watershed Partnership Project**

The objectives of this project were to (1) hire and support a coordinator to implement the management plan, and, in particular, the contour fence project; and (2) secure funding, hire a fence crew, and continue fence construction. Five miles of fence had previously been constructed through the Partnership with funding from the Natural Area Reserve Fund. To accomplish the first, a sub-committee advertised and hired a coordinator. The second objective was accomplished via a United States Fish and Wildlife Service Candidate Conservation grant and matching cost-share from the Natural Area Reserve Fund. The fence crew was hired and is presently working on the fence. Partnership staff recently moved to the Piipiholo in Makawao. The former University of Hawaii facilities provide office and baseyard space for the present and expanding Partnership staff and are well located for helicopter access to sites in East Maui.

### **Kohala Monitoring**

The primary objective of this project was to collect critical baseline data needed to prioritize management of the Kohala watershed to maintain the health and integrity of the

forest and to measure the effectiveness of management actions. Not all of the acreage in the Kohala watershed has been surveyed due to the vast area and its remoteness. The management strategy is to prevent ungulate damage; survey, document and map priority invasive exotic species such as banana poka, Himalayan raspberry, *Miconia*, *Clidemia*, christmasberry, waiawi, Australian tree fern, karaka nut and kahili ginger; and monitor rare elements as indicators of forest health.

Six multi-day surveys were conducted by teams of four or more staff members. Several large areas (2 hectares) dominated by the highly invasive *Tibouchina herbacea* and widespread ungulate damage were noted. Staff will continue monitoring weeds and ungulates on a five-year rotation and transects will be established to provide additional information on the spread of new advancing threats. Recommendations include increased weed and ungulate control.

### **Watershed Monitoring and Database Development**

The objective of this ongoing project is to provide watershed partnership coordinators monitoring and mapping support for their areas. Over the past year, members of the Hawaii Natural Heritage Program (HINHP) staff met with members of the Oahu and Maui watershed partnerships to discuss database and GIS needs for weed and ungulate monitoring. Ideally, all watershed partners would follow the same set of weed and ungulate monitoring protocols, and data would be entered into a single database. This would provide a clear picture of the status of watersheds throughout the state. Toward this end, the HINHP developed a needs-assessment process; compiled existing data; established a system of data standardization and input; developed a method to retrieve this information for applications, such as work assignment and report writing; and trained partnership staff to use the data.

### **YCC and Public Education**

For a description of the accomplishments of the NAPP-funded YCC and Watershed Information and Education, please see the Public Outreach, Youth Activities and Community Involvement section in the NARS section of this report.

## **2. COMPLIANCE WITH CHAPTER 42D, HRS, REQUIREMENTS.**

All partnership projects are in accordance with the provisions in Chapter 42D, HRS.

## **3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED IN MEETING OR FAILING TO MEET THE OBJECTIVES AS SET FORTH IN THE MANAGEMENT PLANS.**

Natural resource protection and management are long-term efforts requiring time and energy commitments not often found in other projects. Restoration projects often take years before results are discernible. Several of the projects funded this year under the NAPP could take years to achieve the desired objectives. It is important to note that management and protection of natural areas, watersheds and native ecosystems need to

continue for the long term.

In the past, consideration and incorporation of community concerns into natural resource management programs were not addressed as well as they could have been. Community-based management programs require a concerted effort and often take a long time to establish and implement. Community advisory councils and facilitated working groups have been established to help management partners address local concerns in the coming years.

Long-range water development plans for Molokai have potential ramifications for the Pelekunu Preserve and its undiverted waters. Any water development plan need to address the impacts on these natural resources to avoid competing and possibly counter-productive, State-funded programs.

Partnerships, such as the East Maui Watershed Partnership and West Maui Mountains Watershed Partnership, will become increasingly important as ecosystem level issues are addressed. The East Molokai Watershed Partnership will help expand the management focus on Molokai beyond NARS, NAPP and National Park Service boundaries. Ecosystem issues are complex and cut across political, legal and geographic boundaries. Often, no one agency or organization is equipped to handle the issue in its entirety thus making cooperative partnerships a vital necessity.

#### **4. Status of Public Hunting Opportunities.**

On Molokai, the Kamakou Preserve is open for public hunting on a year-round basis for hunting of pigs, goats, and axis deer with no bag limits. Moomomi Preserve currently has no public hunting opportunities. Pelekunu Preserve has had limited public hunting opportunities in previous years. The Preserve is remote and rugged with little access. In FY02, Preserve staff organized volunteer ground hunts. Due to legal issues, aerial hunting was suspended but is scheduled to resume, with Working Group approval, in the winter of 2002, and limited to specific, remote, steep pali.

On Maui, public hunting on Kapunakea Preserve is allowed only with staff supervision due to liability and safety concerns. Each request is considered on a case-by-case basis to ensure that hunter access to lower portions of the Preserve is permitted while preventing disruption to the existing private agriculture operations. Waikamoi Preserve has limited volunteer hunting opportunities. Heleakala Ranch employees may hunt in the Preserve as long as game is available. Public hunters who are willing to follow established guidelines and sign a liability waiver and volunteer form are allowed to hunt in one unit on a limited basis. The Puu Kukui Watershed Management Area has a policy of issuing year-round, no-bag-limit permits to hunters with valid state hunting licenses for pig hunting on plantation lands below the Watershed Management Area. The Lanai hunting community has been actively involved with removing deer from the fenced units in the Kanepuu Preserve.

**5. FINANCIAL REPORT.**

NAPP, on private lands under permanent conservation easements and agreements with the State, as well as the Watershed Partnerships, are supported by the Natural Area Reserve Fund (Special; see Table 2 and 3 respectively). Revenues flow into the Fund from the Conveyance Tax (25% of total Tax) on real estate transactions.

Due to above-average revenues in the Fund resulting from a brisk real estate sales over the last two years, the Administration requested, and was granted by the Legislature a raise in the spending cap to provide for State cost-share for watershed and conservation grants obtained from various federal departments (See Table E)

**6. PLANS AND MANAGEMENT OBJECTIVES FOR THE NEXT FISCAL YEAR.**

Preserve management activities will be guided by completed management plans. Plan implementation will focus on eliminating or controlling the spread of non-native plants and animals that have a detrimental effect on native ecosystems. Other management considerations will include rare and endangered species protection, monitoring, research, public education and generating community support.

FY03 will be a very active year for the watershed partnerships. Management plans will be implemented as a result of obtaining a number of Federal watershed and conservation grants and the Legislature providing the State cost-share from the Natural Area Reserve Fund (See Table E).

Detailed project plans and accomplishment reports for the NARS System, NAP Program and Watershed Partnership Program are available through links from DOFAW websites or from the:

NARS Program Manager  
Division of Forestry and Wildlife  
1151 Punchbowl Street, Room 325  
Honolulu, HI 96813  
Telephone: 587-0054  
Fax: 587-0064  
E-mail : Randall\_W\_Kennedy@exec.state.hi.us



## **LNR 407 Natural Areas Management Budget Summary Fiscal Year 2002**

**Table A:      FY02 Natural Area Reserve System Expenditures (047)**

**Total = \$1,178,221**

NARS 'A' Personnel Budget FY02

Total = \$709,221

NARS 'B' Operating Budget FY02

Total = \$469,000

| <b>Branch</b>  | <b>Budgeted 'B'<br/>Operations<br/>Expenditures</b> |
|----------------|---|
| Administration | \$73,000  |
| Kauai          | \$83,000  |
| Oahu           | \$83,000  |
| Maui           | \$100,000   |
| Hawaii         | \$130,000   |

**Table B:      Natural Area Partnership Program Expenditures FY02 (342)**

**Total = \$975,342**

| <b>NAPP Preserves</b>               | <b>Budgeted Expenditures FY02</b> |
|-------------------------------------|-----------------------------------|
| Kanepuu                             | \$108,475                         |
| Kapunakea                           | \$122,729                         |
| Kamakou                             | \$139,179                         |
| Moomomi                             | \$30,586                          |
| Pelekunu                            | \$108,569                         |
| Puu Kukui Watershed Management Area | \$137,836                         |
| Waikamoi                            | \$327,968                         |

**Table C: NAPP Watershed Projects Expenditures FY02 (342)****Total = \$652,850**

| <b>NAP Watershed Projects</b>                        | <b>Budgeted Expenditures FY02</b> |
|--|-----------------------------------|
| Youth Conservation Corps                             | \$115,578                         |
| West Maui Mountain Watershed Partnership             | \$51,000                          |
| East Maui Mountain Watershed Partnership             | \$76,730                          |
| East Molokai Watershed Partnership                   | \$4,811                           |
| Watershed Monitoring and Mapping Support Project     | \$24,700                          |
| Kohala Mountain Watershed Monitoring and Preplanning | \$15,000                          |
| Watershed Information and Education                  | \$18,891                          |
| B+F Central Services Overhead                        | \$334,000                         |
| DOFAW Direct Costs                                   | \$12,100                          |

**Table D: NAPP Watershed Projects Grants FY03****Total= \$482,000**

|  | <b>Amount Awarded</b> |
|--|-----------------------|
| 1 West Maui Watershed Partnership                            | \$36,000              |
| 2 East Maui Watershed Partnership                            | \$55,000              |
| 3 Koolau Watershed Partnership                               | \$60,000              |
| 4 East Molokai Watershed Partnership                         | \$50,000              |
| 5 Kohala Watershed Project                                   | \$60,000              |
| 6 Heritage Watershed database services                       | \$24,000              |
| 7 Watershed I+E services                                     | \$12,000              |
| 8 Axis Deer Control Plan Development, Maui                   | \$20,000              |
| 9 Watershed Partnership Planning Support                     | \$20,000              |
| 10 Year of the Forest  | \$10,000              |
| 11 Puu Makaala and Kilauea Fencing and Ecosystem Restoration | \$52,000              |
| 12 Kona Watershed Management Plan                            | \$30,000              |
| 13 Kauai Watershed Education Programs                        | \$5,000               |
| 14 Kauai Watershed On-the-ground Projects                    | \$28,000              |
| 15 Kauai Watershed Management Plan                           | \$20,000              |

**Table E: NAPP Watershed Projects Cost-share Table FY03****Total= \$1,300,000**

| <b>Project No.</b> | <b>Safe Harbor Agreement Grant Program</b>                              | <b>USFWS Share</b>      | <b>State Match from NARF S-03-342</b> |
|--------------------|---|-------------------------|---------------------------------------|
| SHA-2              | Development and Processing of State SHAs                                | \$120,240               | \$39,886                              |
| SHA-3              | Olaa Kilauea Partnership SHA  | \$125,000               | \$61,500                              |
| SHA-9              | Recovery Actions for West Maui Mountains Watershed SHA                  | \$212,932               | \$114,222                             |
| SHA-10             | Recovery Actions of Oahu's Koolau Mountain Watershed Partnership SHA    | \$52,914                | \$45,000                              |
|                    | <b>Subtotal:</b>  | <b>\$511,086</b>        | <b>\$260,608</b>                      |
|                    |   |                         |                                       |
|                    | <b>Candidate Conservation Agreement Grant Program</b>                   | <b>USFWS Share</b>      | <b>State Match from NARF S-03-342</b> |
| CCA-1              | Recovery Actions for Hawaii's Natural Area Reserve System CCA           | \$449,094               | \$291,456                             |
| CCA-2              | Fence Construction, Threat Control of East Maui Watershed CCA           | \$208,656               | \$113,358                             |
| CCAA-5             | Managements Actions of Candidate Plant Taxa in the Limahuli Watershed   | \$101,500               | \$37,800                              |
| SHA-10             | Recovery Actions of Oahu Koolau Mountain Watershed Partnership SHA      | \$42,086                | \$40,000                              |
|                    | <b>Subtotal:</b>  | <b>\$801,336</b>        | <b>\$482,614</b>                      |
|                    |   |                         |                                       |
|                    | <b>Wildlife Conservation and Restoration Program</b>                    | <b>USFWS Share</b>      | <b>State Match from NARF S-03-342</b> |
| various            | Statewide Projects for Wildlife Conservation, Education and Recreation. | \$967,866               | \$150,000                             |
|                    | <b>Subtotal:</b>  | <b>\$967,866</b>        | <b>\$150,000</b>                      |
|                    |   | -                       |                                       |
|                    | <b>USFWS/USFS Traditional Program</b>                                   | <b>USFWS/USFS Share</b> | <b>State Match from NARF S-03-342</b> |
| EP-16              | Koolau Mountain Habitat Management                                      | \$30,000                | \$10,000                              |
| EP-18              | Kanaio Fence, Maui  | \$120,000               | \$40,000                              |
| various            | Rapid Response Invasive Species Control (increase)                      | \$300,000               | \$214,328                             |
| FS-1               | South Haleakala Native Forest Restoration                               | \$82,450                | \$82,450                              |
| NRT1               | Trails Program (increase)   | \$240,000               | \$60,000                              |
|                    | <b>Subtotal:</b>  | <b>\$772,450</b>        | <b>\$406,778</b>                      |
|                    |   |                         |                                       |
|                    | <b>Totals for FY03</b>  | <b>\$3,052,738</b>      | <b>\$1,300,000</b>                    |

**Table F:      Projected Youth Conservation Corp Expenditures and B+F Central Services Charges FY03**

**Total = \$371,80**

|                               |           |
|-------------------------------|-----------|
| Youth Conservation Corp       | \$175,000 |
| Central Services Costs to B+F | \$196,808 |